

RECEIVED

JUL 1 8 2001

SEQUENCE LISTING

TECH CENTER 1600/2900

1

<110> Zinselmeier, Chris Habben, Jeff Tomes, Dwight

<120> Regulated Expression of Genes in Plant Seeds

<130> 0803

<140> US 09/545,334

<141> 2000-04-07

<150> US 60/129,844

<151> 1999-04-16

<160> 12

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1608

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (1)...(1605)

<400> 1

atg gcg gtg gtt tat tac ctg ctg ctg gcc ggg ctg atc gcc tgc tct 48

Met Ala Val Val Tyr Tyr Leu Leu Leu Ala Gly Leu Ile Ala Cys Ser 1 5 10 15

cat gca cta gcg gca ggc acg ctt gcg ctc gga gaa gat cgc ggc cgt 96

His Ala Leu Ala Ala Gly Thr Leu Ala Leu Gly Glu Asp Arg Gly Arg 20 25 30

ccc tgg cca gcc ttc ctc gcc gcg ctg gcc ttg gac ggc aag ctc cgg

Pro Trp Pro Ala Phe Leu Ala Ala Leu Ala Leu Asp Gly Lys Leu Arg

A

35 40 45

acc 92	gac	agc	aac	gcg	acg	gcg	gcg	gcc	tcg	acg	gac	ttc	ggc	aac	atc	1
	Asp 50	Ser	Asn	Ala	Thr	Ala 55	Ala	Ala	Ser	Thr	Asp 60	Phe	Gly	Asn	Ile	
acg 40	tcg	gcg	ctc	ccg	gcg	gcg	gtc	cta	tac	ccg	tcg	tcc	acg	ggc	gac	2
	Ser	Ala	Leu	Pro	Ala 70	Ala	Val	Leu	Tyr	Pro 75	Ser	Ser	Thr	Gly	Asp 80	
ctg 88	gtg	gcg	ctg	ctg	agc	gcg	gcc	aac	tcc	acc	ccg	999	tgg	ccc	tac	2
Leu	Val	Ala	Leu	Leu 85	Ser	Ala	Ala	Asn	Ser 90	Thr	Pro	Gly	Trp	Pro 95	Tyr	
acc 36	atc	gcg	ttc	cgc	ggc	cgc	ggc	cac	tcc	ctc	atg	ggc	cag	gcc	ttc	3
	Ile	Ala	Phe 100	Arg	Gly	Arg	Gly	His 105	Ser	Leu	Met	Gly	Gln 110	Ala	Phe	
gcc 84	ccc	ggc	a aa	gtg	gtc	gtc	aac	atg	gcg	tcc	ctg	ggc	gac	gcc	gcc	3
Ala	Pro	Gly 115	Gly	Val	Val	Val	Asn 120	Met	Ala	Ser	Leu	Gly 125	Asp	Ala	Ala	
gcc 32	gcc	gcg	ccg	ccg	cgc	gtc	aac	gtg	tcc	gcg	gac	ggc	cgc	tac	gtg	4
_	Ala 130	Ala	Pro	Pro	Arg	Val 135	Asn	Val	Ser	Ala	Asp 140	Gly	Arg	Tyr	Val	
gac 80	gcc	ggc	ggc	gag	cag	gtg	tgg	atc	gac	gtg	ctg	cgc	gcg	tct	ctg	4
_	Ala	Gly	Gly	Glu	Gln 150		Trp	Ile	Asp	Val 155	Leu	Arg	Ala	Ser	Leu 160	
gcg 28	cgc	ggc	gtg	gcg	ccg	cgc	tcc	tgg	acc	gac	tac	ctc	tac	ctc	acc	5
	Arg	Gly	Val	Ala 165	Pro	Arg	Ser	Trp	Thr 170	Asp	Tyr	Leu	Tyr	Leu 175	Thr	
gtc 76	ggc	ggc	acg	ctg	tcc	aac	gca	ggc	atc	agc	ggc	cag	gcg	ttc	cgc	5
	Gly	Gly	Thr	Leu	Ser	Asn	Ala	Gly	Ile	Ser	Gly	Gln	Ala	Phe	Arg	



185

190

180





20															g aat	
Thi	: Asp	o Arg	500	As <u>r</u>	Trp	Val	. Arg	9 His 505	Phe	e Gly	y Ala	a Ala	a Glu 510) Asn	
cgc 84	tto	gtg	g gag	, atg	g aag	, aac	: aag	, tac	gad	CCC	c aag	g agg	gcts	gcto	tcc	15
Arg	y Ph∈	Val 515	. Glu	. Met	Lys	Asn	Lys 520		Asp) Pro	D Lys	525		ı Lev	ı Ser	
CCC	ggd	cag	gac	ato	ttc	aac	tga	L								16
Pro	Gly 530		Asp	Ile	Phe	Asn 535										
	<	212>	535 PRT		_											
			Zea	шау	S											
T	Ala		Val	5					10					15		
			Ala 20					25					3.0	Gly		
		35	Ala				40					45				
	50		Asn			55					60					
65			Leu		70					75					8.0	
			Leu	85					90					95	Tyr	
			Phe 100					105					110	Ala		
		TT2	Gly				120					125	Asp			
Ala	Ala 130	Ala	Pro	Pro	Arg	Val 135	Asn	Val	Ser	Ala	Asp	Gly	Arg	Tyr	Val	

185

Asp Ala Gly Glu Gln Val Trp Ile Asp Val Leu Arg Ala Ser Leu

Ala Arg Gly Val Ala Pro Arg Ser Trp Thr Asp Tyr Leu Tyr Leu Thr

Val Gly Gly Thr Leu Ser Asn Ala Gly Ile Ser Gly Gln Ala Phe Arg

150

165

180

140

190

155

His Gly Pro Gln Ile Ser Asn Val Leu Glu Met Asp Val Ile Thr Gly His Gly Glu Met Val Thr Cys Ser Lys Gln Leu Asn Ala Asp Leu Phe 215 220 Asp Ala Val Leu Gly Gly Leu Gly Gln Phe Gly Val Ile Thr Arg Ala 230 Arg Ile Ala Val Glu Pro Ala Pro Ala Arg Ala Arg Trp Val Arg Leu 245 250 Val Tyr Thr Asp Phe Ala Ala Phe Ser Ala Asp Gln Glu Arg Leu Thr 265 Ala Pro Arg Pro Gly Gly Gly Ala Ser Phe Gly Pro Met Ser Tyr 280 Val Glu Gly Ser Val Phe Val Asn Gln Ser Leu Ala Thr Asp Leu Ala 295 Asn Thr Gly Phe Phe Thr Asp Ala Asp Val Ala Arg Ile Val Ala Leu 310 315 Ala Gly Glu Arg Asn Ala Thr Thr Val Tyr Ser Ile Glu Ala Thr Leu 330 Asn Tyr Asp Asn Ala Thr Ala Ala Ala Ala Val Asp Gln Glu Leu Ala 345 Ser Val Leu Gly Thr Leu Ser Tyr Val Glu Gly Phe Ala Phe Gln Arg 360 Asp Val Ser Tyr Thr Ala Phe Leu Asp Arg Val His Gly Glu Glu Val 375 Ala Leu Asn Lys Leu Gly Leu Trp Arg Val Pro His Pro Trp Leu Asn 390 Met Phe Val Pro Arg Ser Arg Ile Ala Asp Phe Asp Arg Gly Val Phe 410 Lys Gly Ile Leu Gln Gly Thr Asp Ile Val Gly Pro Leu Ile Val Tyr 425 Pro Leu Asn Lys Ser Met Trp Asp Asp Gly Met Ser Ala Ala Thr Pro 440 Ser Glu Asp Val Phe Tyr Ala Val Ser Leu Leu Phe Ser Ser Val Ala 455 Pro Asn Asp Leu Ala Arg Leu Gln Glu Gln Asn Arg Arg Ile Leu Arg 470 475 Phe Cys Asp Leu Ala Gly Ile Gln Tyr Lys Thr Tyr Leu Ala Arg His 490 Thr Asp Arg Ser Asp Trp Val Arg His Phe Gly Ala Ala Glu Trp Asn 505 Arg Phe Val Glu Met Lys Asn Lys Tyr Asp Pro Lys Arg Leu Leu Ser 515 525 Pro Gly Gln Asp Ile Phe Asn 530 535

<210> 3 <211> 51

```
<212> DNA
      <213> Artificial Sequence
      <220>
      <223> Synthesized based on sequence from Agrobacterium
            tumefaciens
      <400> 3
caucaucauc auggatccac caatggatct acgtctaatt ttcggtccaa c
51
      <210> 4
      <211> 42
      <212> DNA
      <213> Artificial Sequence
      <220>
      <223> Synthesized based on sequence from Agrobacterium
            tumefaciens
      <400> 4
cuacuacuac uagttaactc acattcgaaa tggtggtcct tc
42
      <210> 5
      <211> 29
      <212> DNA
      <213> Zea mays
      <400> 5
catgccatgg cggtggttta ttacctgct
29
      <210> 6
      <211> 31
      <212> DNA
      <213> Zea mays
      <400> 6
cgggatcctc atcatcagtt gaagatgtcc t
31
      <210> 7
      <211> 5622
      <212> DNA
      <213> Artificial Sequence
```

<220>

<223> Promoter and terminator from Zea mays as found in Genbank Accession #S78780; gene from Agrobacterium tumefaciens as found in Molecular and General Genetics 216:388-394 (1989).

<400> 7

gctctagatt 60	: atataattta	taagctaaac	aacccggccc	: taaagcacta	tcgtatcacc	
tatctaaata 20	ı agtcacggga	gtttcgaacg	tccacttcgt	cgcacggaat	tgcatgtttc	1
80					acttacattt	1
40					ccatataagt	2
00					ggatctacaa	3
60					aattaaacta	3
20					tcgtcccgcg	4
80	taaaaaactc					4
40	tataataaga					5
00	ggttgttggc					6
60	aaaatttatc					6
20	cacgggcata					7
80	ccaaataaaa					7
40	taaatctctt					8
00	atcatccagg					9
60	tggcatgtaa					9
20	attgcacgtc					10
80	aacacggtga					10
40	cattacaaac					11
aataggccgg 00	acaggacaaa	aatccttgac	gtgtaaagta	aatttacaac	aaaaaaaag	12

60	a agctaaatc	aattcgtttt	t acgtagatc	a acaacctgta	a gaaggcaaca	12
aaactgagc 20	c acgcagaagt	acagaatgat	tccagatga:	a ccatcgacgt	gctacgtaaa	13
gagagtgac 80	g agtcatatad	atttggcaag	g aaaccatga	a gctgcctaca	a gccgtatcgg	13
tggcataag 40	a acacaagaaa	ı ttgtgttaat	taatcaaag	c tataaataac	gctcgcatgc	14
ctgtgcact 00	t ctccatcacc	accactgggt	cttcagacca	a ttagctttat	: ctactccaga	15
gcgcagaag: 60	a acccgatcga	caccatggat	ctacgtcta	a ttttcggtcc	: aacttgcaca	15
20	t cgactgcgat					16
00	c aatgctgtcc					16
40	a cgactcgtct					17
00	g ctcatgaacg					18
80	g agggaggatc					18
aacgcggatt 20	ttcgttggca	tattattcgc	aacgagttag	cagacgagga	gagcttcatg	19
agcgtggcca 80	agaccagagt	taagcagatg	ttacgcccct	ctgcaggtct	ttctattatc	19
40	f ttcaactttg					20
00	atgccctgct					21
cagetegaeg 60	cagatatgga	gaataaattg	attcacggta	tcgctcagga	gtttctaatc	21
catgcgcgtc 20	gacaggaaca	gaaattccct	ttggtgggcg	cgacagctgt	cgaagcgttt	22
gaaggaccac 80	catttcgaat	gtgagttgat	ccccggcggt	gtcccccact	gaagaaacta	22
tgtgctgtag 40	tatagccgct	ggctagctag	ctagttgagt	catttagcgg	cgatgattga	23
gtaataatgt 00	gtcacgcatc	accatgcatg	ggtggcagtc	tcagtgtgag	caatgacctg	24
aatgaacaat 60	tgaaatgaaa	agaaaaaagt	attgttccaa	attaaacgtt	ttaacctttt	24
aataggttta 20	tacaataatt	gatatatgtt	ttctgtatat	gtctaatttg	ttatcatcca	25
tttagatata 80	gacgaaaaaa	aatctaagaa	ctaaaacaaa	tgctaatttg	aaatgaaggg	25
agtatatatt	gggataatgt	cgatgagatc	cctcgtaata	tcaccgacat	cacacgtgtc	26

40						
cagttaatgt	atcagtgata	a cgtgtattca	catttgttgc	gcgtaggcgt	acccaacaat	27
tttgatcgac	tatcagaaag	g tcaacggaag	g cgagtcgacc	tcgaggggg	gcccggtacc	27
aagatatcaa 20	a ccgcggaaag	g atctaagcat	gcaagggcco	aagtcgacct	gcagaagctt	28
gcatgcctgc 80	agtgcagcgt	gacccggtcg	tgcccctctc	: tagagataat	gagcattgca	28
40					aagtgcagtt	29
tatctatctt 00	tatacatata	tttaaacttt	actctacgaa	taatataatc	tatagtacta	30
caataatatc 60	agtgttttag	agaatcatat	aaatgaacag	ttagacatgg	tctaaaggac	30
aattgagtat 20	tttgacaaca	ggactctaca	gttttatctt	tttagtgtgc	atgtgttctc	31
ctttttttt 80	gcaaatagct	tcacctatat	aatacttcat	ccattttatt	agtacatcca	31
tttagggttt 40	agggttaatg	gtttttatag	actaatttt	ttagtacatc	tattttattc	32
tattttagcc 00	tctaaattaa	gaaaactaaa	actctatttt	agtttttta	tttaataatt	33
60		ataaagtgac				33
taaaaaaact 20	aaggaaacat	ttttcttgtt	tcgagtagat	aatgccagcc	tgttaaacgc	34
80		ggacaccaac				34
40		tctctgtcgc				35
00		ctgtcggcat				36
60		ctcctcctcc				36
20		ttcccttcct				37
acaccctctt 80	tccccaacct	cgtgttgttc	ggagcgcaca	cacacacaac	cagatetece	37
ccaaatccac 10	ccgtcggcac	ctccgcttca	aggtacgccg	ctcgtcctcc	cccccccc	38
) U		ggcgttccgg				39
0		ccgtgtttgt				39
ggatgcgacc 20	tgtacgtcag	acacgttctg	attgctaact	tgccagtgtt	tctctttggg	40

gaatcctggg 80	atggctctag	g ccgttccgca	a gacgggatcg	g atttcatgat	tttttttgtt	40
	gggtttggtt	tgcccttttc	ctttatttca	a atatatgccg	, tgcacttgtt	41
	tcttttcate	g cttttttttg	tcttggttgt	gatgatgtgg	tctggttggg	42
	agatcggagt	agaattctgt	ttcaaactac	ctggtggatt	tattaatttt	42
	gtgtgtgcca	a tacatattca	. tagttacgaa	ı ttgaagatga	tggatggaaa	43
tatcgatcta 80	ggataggtat	acatgttgat	gcgggtttta	ctgatgcata	tacagagatg	43
ctttttgttc 40	gcttggttgt	gatgatgtgg	tgtggttggg	g cggtcgttca	ttcgttctag	44
atcggagtag 00	aatactgttt	caaactacct	ggtgtattta	ttaattttgg	aactgtatgt	45
gtgtgtcata 60	catcttcata	gttacgagtt	taagatggat	ggaaatatcg	atctaggata	45
ggtatacatg 20	ttgatgtggg	ttttactgat	gcatatacat	gatggcatat	gcagcatcta	46
ttcatatgct 80	ctaaccttga	gtacctatct	attataataa	acaagtatgt	tttataatta	46
ttttgatctt 40	gatatacttg	gatgatggca	tatgcagcag	ctatatgtgg	atttttttag	47
ccctgccttc 00	atacgctatt	tatttgcttg	gtactgtttc	ttttgtcgat	gctcaccctg	48
ttgtttggtg 60	ttacttctgc	aggtcgaccg	ccggggatcc	acacgacacc	atgtcccccg	48
agcgccgccc 20	cgtcgagatc	cgcccggcca	ccgccgccga	catggccgcc	gtgtgcgaca	49
tcgtgaacca 80	ctacatcgag	acctccaccg	tgaacttccg	caccgagccg	cagaccccgc	49
aggagtggat 40	cgacgacctg	gagcgcctcc	aggaccgcta	cccgtggctc	gtggccgagg	50
tggagggcgt 00	ggtggccggc	atcgcctacg	ccggcccgtg	gaaggcccgc	aacgcctacg	51
actggaccgt 60	ggagtccacc	gtgtacgtgt	cccaccgcca	ccagcgcctc	ggcctcggct	51
ccaccctcta 20	cacccacctc	ctcaagagca	tggaggccca	gggcttcaag	tccgtggtgg	52
ccgtgatcgg 80	cctcccgaac	gacccgtccg	tgcgcctcca	cgaggccctc	ggctacaccg	52
cccgcggcac 40	cctccgcgcc	gccggctaca	agcacggcgg	ctggcacgac	gtcggcttct	53
ggcagcgcga 00	cttcgagctg	ccggccccgc	cgcgcccggt	gcgcccggtg	acgcagatct	54
gagtcgacct	gcaggcatgc	cgctgaaatc	accagtctct	ctctacaaat	ctatctctct	54

60						
ctataataat 20	gtgtgagtag	ttcccagata	agggaattag	ggttcttata	gggtttcgct	55
catgtgttga 80	gcatataaga	aacccttagt	atgtatttgt	atttgtaaaa	tacttctatc	55
aataaaattt 22	ctaattccta	aaaccaaaat	ccagtggcga	gc		56
-210	15 0					

<210> 8

<211> 2722

<212> DNA

<213> Artificial Sequence

<220>

<223> Promoter from Hordeum vulgare, Plant Journal 6:849-860 (1994); gene from Agrobacterium tumefaciens, Molecular and General Genetics 216:388-394 (1989); terminator from Zea mays, Genbank Accession #S78780.

<400> 8

cggccgctct agaactagtg gatctcgatg tgtagtctac gagaagggtt aaccgtctct

tcgtgagaat aaccgtggcc taaaaataag ccgatgagga taaataaaat gtggtggtac

agtacttcaa gaggtttact catcaagagg atgcttttcc gatgagctct agtagtacat

cggacctcac atacctccat tgtggtgaaa tattttgtgc tcatttagtg atgggtaaat 240

tttgtttatg tcactctagg ttttgacatt tcagttttgc cactcttagg ttttgacaaa 300

tcacaatgta tcacaaatgc cactctagaa attctgttta tgccacagaa tgtgaaaaaa 420

aacactcact tatttgaagc caaggtgttc atggcatgga aatgtgacat aaagtaacgt

tcgtgtataa gaaaaaattg tactcctcgt aacaagagac ggaaacatca tgagacaatc 540

gcgtttggaa ggctttgcat cacctttgga tgatgcgcat gaatggagtc gtctgcttgc

tageettege etaeegeeca etgagteegg geggeaacta eeateggega aegaeecage

tgacctctac cgaccggact tgaatgcgct accttcgtca gcgacgatgg ccgcgtacgc

tggcgacgtg cccccgcatg catggcggca catggcgagc tcagaccgtg cgtggctggc 780

tacaaatacg taccccgtga gtgccctagc tagaaactta cacctgcaac tgcgagagcg

840						
900					: aacaattacc	
aacaacaaca 960	a aacaacaaac	aacattacaa	ttactattta	a caattacagt	cgacggatca	
agtgcaaagg 020	, teegeettgt	ttctcctctg	r tctcttgato	tgactaatct	tggtttatga	1
ttcgttgagt 080	aattttgggg	aaagcttcgt	ccacagtttt	tttttcgatg	aacagtgccg	1
cagtggcgct 140	gatcttgtat	gctatcctgc	aatcgtggtg	g aacttatgtc	ttttatatcc	1
ttcactacca 200	tgaaaagact	agtaatcttt	ctcgatgtaa	catcgtccag	cactgctatt	1
accgtgtggt 260	ccatccgaca	gtctggctga	acacatcata	cgatattgag	caaagatcga	1
tctatcttcc 320	ctgttcttta	atgaaagacg	tcattttcat	cagtatgatc	taagaatgtt	1
gcaacttgca 380	aggaggcgtt	tctttctttg	aatttaacta	actcgttgag	tggccctgtt	1
tctcggacgt 440	aaggcctttg	ctgctccaca	catgtccatt	cgaattttac	cgtgtttagc	1
aagggcgaaa 500	agtttgcatc	ttgatgattt	agcttgacta	tgcgattgct	ttcctggacc	1
cgtgcagctg 560	cggacggatc	caccatggat	ctacgtctaa	ttttcggtcc	aacttgcaca	1
ggaaagacat 620	cgactgcgat	agctcttgcc	cagcagactg	gcctcccagt	cctctcgctc	1
gatcgcgtcc 680	aatgctgtcc	tcaactatca	accggaagcg	ggcgaccaac	agtggaagaa	1
ctgaaaggaa 740	cgactcgtct	gtaccttgat	gatcgccctt	tggtaaaggg	tatcattaca	1
gccaagcaag 800	ctcatgaacg	gctcattgcg	gaggtgcaca	atcacgaggc	caaaggcggg	1
cttattcttg 860	agggaggatc	tatctcgttg	ctcaggtgca	tggcgcaaag	tcgttattgg	1
aacgcggatt 920	ttcgttggca	tattattcgc	aacgagttag	cagacgagga	gagcttcatg	1
agcgtggcca 980	agaccagagt	taagcagatg	ttacgcccct	ctgcaggtct	ttctattatc	1
caagagttgg 040	ttcaactttg	gagggagcct	cggctgaggc	ccatactgga	agggatcgat	2
ggatatcgat 100	atgccctgct a	atttgctacc	cagaaccaga	tcacgcccga	tatgctattg	2
cagctcgacg 160	cagatatgga g	gaataaattg	attcacggta	tcgctcagga (gtttctaatc	2
catgcgcgtc 220	gacaggaaca g	gaaattccct	ttggtgggcg	cgacagctgt (cgaagcgttt	2

280	2
tgtgctgtag tatagccgct ggctagctag ctagttgagt catttagcgg cgatgattga 340	2
gtaataatgt gtcacgcatc accatgcatg ggtggcagtc tcagtgtgag caatgacctg	2
aatgaacaat tgaaatgaaa agaaaaaagt attgttccaa attaaacgtt ttaacctttt 460	2
aataggttta tacaataatt gatatatgtt ttctgtatat gtctaatttg ttatcatcca 520	2
tttagatata gacgaaaaaa aatctaagaa ctaaaacaaa tgctaatttg aaatgaaggg 580	2
agtatatatt gggataatgt cgatgagatc cctcgtaata tcaccgacat cacacgtgtc	2
cagttaatgt atcagtgata cgtgtattca catttgttgc gcgtaggcgt acccaacaat 700	2
tttgatcgac tatcagaaag tc 722	2
<210> 9 <211> 2722 <212> DNA <213> Artificial Sequence	
<220>	
<pre><223> Promoter from Zea mays, U.S. patent application 09/377,6 ;</pre>	48
gene from Agrobacterium tumefaciens, Molecular and General Genetics 216:388-394 (1989); terminator from Solanum tuberosum, Plant Cell 1(1):115-122 (1989).	
<400> 9	
cggccgctct agaactagtg gatctcgatg tgtagtctac gagaagggtt aaccgtctct	
tcgtgagaat aaccgtggcc taaaaataag ccgatgagga taaataaaat gtggtggtac 120	
agtacttcaa gaggtttact catcaagagg atgcttttcc gatgagctct agtagtacat 180	
cggacctcac atacctccat tgtggtgaaa tattttgtgc tcatttagtg atgggtaaat 240	
tttgtttatg tcactctagg ttttgacatt tcagttttgc cactcttagg ttttgacaaa 300	
taatttccat tccgcggcaa aagcaaaaca attttatttt	
tcacaatgta tcacaaatgc cactctagaa attctgttta tgccacagaa tgtgaaaaaa 420	
aacactcact tatttgaagc caaggtgttc atggcatgga aatgtgacat aaagtaacgt	

	480						
	tcgtgtataa 540	gaaaaaatto	g tactcctcg	aacaagaga	c ggaaacatc	a tgagacaatc	
	gcgtttggaa 600	ggctttgcat	cacctttgga	a tgatgcgca	t gaatggagt	c gtctgcttgc	
	tagccttcgc 660	ctaccgccca	ctgagtccgg	gcggcaacta	a ccatcggcg	a acgacccagc	
		cgaccggact	tgaatgcgct	accttcgtca	a gcgacgatg	g ccgcgtacgc	
		ccccgcatg	catggcggca	catggcgago	tcagaccgto	g cgtggctggc	
	700					tgcgagagcg	
		tgtagccgag	tagatcccc	gggctgcagc	: ttatttttac	aacaattacc	
	500					: cgacggatca	
		tccgccttgt	ttctcctctg	tctcttgatc	tgactaatct	tggtttatga	1
	·	aattttgggg	aaagcttcgt	ccacagtttt	tttttcgatg	aacagtgccg	1
		gatcttgtat	gctatcctgc	aatcgtggtg	aacttatgto	tttatatcc	1
		tgaaaagact	agtaatcttt	ctcgatgtaa	catcgtccag	cactgctatt	1
		ccatccgaca	gtctggctga	acacatcata	cgatattgag	caaagatcga	1
		ctgttcttta	atgaaagacg	tcattttcat	cagtatgatc	taagaatgtt	1
	gcaacttgca 380	aggaggcgtt	tctttctttg	aatttaacta	actcgttgag	tggccctgtt	1
	tctcggacgt 440	aaggcctttg	ctgctccaca	catgtccatt	cgaattttac	cgtgtttagc	1
	aagggcgaaa 500						1
	cgtgcagctg 560						1
	ggaaagacat						1
	gategegtee a						1
	ctgaaaggaa (1
	740 gccaagcaag (300						
8	,,,,						1
8	cttattcttg a 360	-jjgaggatt	caccicgttg	utcaggtgca	tggcgcaaag	tcgttattgg	1

aacgcggatt 920	ttcgttggca	tattattcgc	aacgagttag	cagacgagga	gagcttcatg	1
agcgtggcca 980	agaccagagt	taagcagatg	ttacgcccct	ctgcaggtct	ttctattatc	1
caagagttgg 040	ttcaactttg	gagggagcct	cggctgaggc	ccatactgga	agggatcgat	2
ggatatcgat 100	atgccctgct	atttgctacc	cagaaccaga	tcacgcccga	tatgctattg	2
cagctcgacg 160	cagatatgga	gaataaattg	attcacggta	tcgctcagga	gtttctaatc	2
catgcgcgtc 220	gacaggaaca	gaaattccct	ttggtgggcg	cgacagctgt	cgaagcgttt	2
gaaggaccac 280	catttcgaat	gtgagttgat	ccccggcggt	gtccccact	gaagaaacta	2
tgtgctgtag 340	tatagccgct	ggctagctag	ctagttgagt	catttagcgg	cgatgattga	2
gtaataatgt 400	gtcacgcatc	accatgcatg	ggtggcagtc	tcagtgtgag	caatgacctg	2
aatgaacaat 460	tgaaatgaaa	agaaaaaagt	attgttccaa	attaaacgtt	ttaacctttt	2
aataggttta 520	tacaataatt	gatatatgtt	ttctgtatat	gtctaatttg	ttatcatcca	2
tttagatata (580	gacgaaaaaa	aatctaagaa	ctaaaacaaa	tgctaatttg	aaatgaaggg	2
agtatatatt (640	gggataatgt	cgatgagatc	cctcgtaata	tcaccgacat	cacacgtgtc	2
cagttaatgt a 700	atcagtgata	cgtgtattca	catttgttgc	gcgtaggcgt	acccaacaat	2
tttgatcgac t 722	tatcagaaag	tc				2
<210> <211> <212> <213>	23	Sequence				
<220>						
<223>	Synthesized tumefaciens	d based on s	sequence fro	om Agrobact	erium	
<400>						
gcgtccaatg c 23	tgtcctcaa o	cta				
<210> <211> <212>	23					

<213> Artificial Sequence

<220>

<223> Synthesized based on sequence from Agrobacterium tumefaciens

<400> 11

gctctcctcg tctgctaact cgt 23

<210> 12

<211> 3017

<212> DNA

<213> Artificial Sequence

<220>

<400> 12

ttgccgagtg ccatccttgg acactcgata aagtatattt tattttttt attttgccaa

ccaaactttt tgtggtatgt tcctacacta tgtagatcta catgtaccat tttggcacaa 120

ttacatattt acaaaaatgt tttctataaa tattagattt agttcgttta tttgaatttc

ttcggaaaat tcacatttaa actgcaagtc actcgaaaca tggaaaaccg tgcatgcaaa

ataaatgata tgcatgttat ctagcacaag ttacgaccga tttcagaagc agaccagaat

cttcaagcac catgctcact aaacatgacc gtgaacttgt tatctagttg tttaaaaatt

gtataaaaca caaataaagt cagaaattaa tgaaacttgt ccacatgtca tgatatcata

tatagaggtt gtgataaaaa tttgataatg tttcggtaaa gttgtgacgt actatgtgta

gaaacctaag tgacctacac ataaaatcat agagtttcaa tgtagttcac tcgacaaaga 540

ctttgtcaag tgtccgataa aaagtactcg acaaagaagc cgttgtcgat gtactgttcg

tcgagatctc tttgtcgagt gtcacactag gcaaagtctt tacggagtgt ttttcaggct

ttgacactcg gcaaagcgct cgattccagt agtgacagta atttgcatca aaaatagctg

agagatttag gccccgtttc aatctcacgg gataaagttt agcttcctgc taaactttag

1

1

1

780 ctatatgaat tgaagtgcta aagtttagtt tcaattacca ccattagctc tcctgtttag attacaaatg gctaaaagta gctaaaaaat agctgctaaa gtttatctcg cgagattgaa acagggcctt aaaatgagtc aactaataga ccaactaatt attagctatt agtcgttagc 960 ttctttaatc taagctaaaa ccaactaata gcttatttgt tgaattacaa ttagctcaac ggaattetet gtttttetaa aaaaaaactg cccctctctt acagcaaatt gtccgctgcc cgtcgtccag atacaatgaa cgtacctagt aggaactctt ttacacgctc ggtcgctcgc cgcggatcgg agtccccgga acacgacacc actgtggaac acgacaaagt ctgctcagag gcggccacac cctggcgtgc accgagccgg agcccggata agcacggtaa ggagagtacg 1 gcgggacgtg gcgacccgtg tgtctgctgc cacgcagcct tcctccacgt agccgcgcgg 1 ccgcgccacg taccagggcc cggcgctggt ataaatgcgc gccacctccg ctttagttct 1 gcatacagcc aacccaagga tccaacaatg gatctacgtc taattttcgg tccaacttgc 1 acaggaaaga catcgactgc gatagctctt gcccagcaga ctggcctccc agtcctctcg 1 ctcgatcgcg tccaatgctg tcctcaacta tcaaccggaa gcgggcgacc aacagtggaa 1 gaactgaaag gaacgactcg tctgtacctt gatgatcgcc ctttggtaaa gggtatcatt 1 620 acagccaagc aagctcatga acggctcatt gcggaggtgc acaatcacga ggccaaaggc 1 gggcttattc ttgagggagg atctatctcg ttgctcaggt gcatggcgca aagtcgttat 1 740 tggaacgcgg attttcgttg gcatattatt cgcaacgagt tagcagacga ggagagcttc 1 atgagcgtgg ccaagaccag agttaagcag atgttacgcc cctctgcagg tctttctatt 1 atccaagagt tggttcaact ttggagggag cctcggctga ggcccatact ggaagggatc 1 gatggatatc gatatgccct gctatttgct acccagaacc agatcacgcc cgatatgcta 1 980 ttgcagctcg acgcagatat ggagaataaa ttgattcacg gtatcgctca ggagtttcta 2 atccatgcgc gtcgacagga acagaaattc cctttggtgg gcgcgacagc tgtcgaagcg 2 tttgaaggac caccatttcg aatgtgagtt aactatgtac gtaagcggca ggcagtgcaa 2 160

0803.SEQLIST.txt

	taagtgtgg 220	c tctgtagtat	gtacgtgcgg	gtacgatgc	t gtaagctac	t gaggcaagtc	2
						a tttgtcccct	2
	tgcggagtt 340	ggcatccatt	gatgccgtta	cgctgagaad	agacacagca	a gacgaaccaa	2
	aagtgagtto 400	: ttgtatgaaa	ctatgaccct	tcatcgctag	gctcaaacag	J caccccgtac	2
	gaacacagca 460	aattagtcat	ctaactatta	gcccctacat	gtttcagacg	, atacataaat	2
	atageceate 520	: cttagcaatt	agctattggc	cctgcccatc	ccaagcaatg	atctcgaagt	2
)	atttttaata 580	tatagtattt	ttaatatgta	gcttttaaaa	ttagaagata	attttgagac	2
•	aaaaatctcc 640	aagtatttt	ttgggtattt	tttactgcct	ccgtttttct	ttatttctcg	2
	tcacctagtt 700	taattttgtg	ctaatcggct	ataaacgaaa	cagagagaaa	agttactcta	2
	aaagcaactc 760	caacagatta	gatataaatc	ttatatcctg	cctagagctg	ttaaaaagat	2
	agacaacttt 820	agtggattag	tgtatgcaac	aaactctcca	aatttaagta	tcccaactac	2
	ccaacgcata 880	tcgttccctt	ttcattggcg	cacgaacttt	cacctgctat	agccgacgta	2
	catgttcgtt 940	ttttttgggc	ggcgcttact	ttcttccccg	ttcgttctca	gcatcgcaac	2
(atggcggaga					3
(ttattattca 017						3

A Control